1. Organisms can reproduce \_\_\_\_\_\_\_\_\_\_(eukaryotes) and \_\_\_\_\_\_\_\_\_\_\_\_ (prokaryotes).

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_reproduction requires two parents who both provide genes to the new organism during fertilization, resulting in offspring with a mix of inherited genes.
2. In \_\_\_\_\_\_\_\_\_\_\_\_\_ reproduction, only one parent is needed, and offspring are genetically identical to the parent.
3. In both cases, the genetic instructions necessary for development of offspring are contained inside the \_\_\_\_\_\_\_\_\_\_\_\_\_.
4. This genetic material is responsible for the \_\_\_\_\_\_\_\_\_\_ passed on to offspring.
5. These ideas of heredity, or the passing of traits from parent to offspring, were first developed by the father of genetics, \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_, found in the nucleus of eukaryotic cells, are made up of genes, which

in turn are made up of DNA, or deoxyribonucleic acid.

1. The information in DNA is a code made up of \_\_\_\_\_\_ chemical bases, and the order of these basesis what determines how an organism grows and develops.
2. DNA is arranged in two strips that form a spiral called a double \_\_\_\_\_\_\_\_\_\_\_.
3. DNA was first discovered through the combined efforts of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,& \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. An important property of DNA is that it has the ability to make \_\_\_\_\_\_\_\_\_\_\_\_ of itself.
5. This is important when cells divide because each new cell needs to have an exact copy of the DNA from the old cell.
6. The genetic code passed on by the parent determines the \_\_\_\_\_\_\_\_\_\_\_\_\_\_of the offspring.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ makes it possible for organisms to grow and thrive in a variety of environments under a multitude of varying conditions.
8. Organisms can be divided into two groups, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (without a nucleus) and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (with a nucleus).
9. Organisms can reproduce asexually (\_\_\_\_\_\_\_\_\_\_\_\_) and sexually (\_\_\_\_\_\_\_\_\_\_\_\_).
10. During reproduction, \_\_\_\_\_\_\_\_\_\_\_\_\_copied and passed on to offspring.
11. Dominance determines \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the offspring. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the outward expression of a trait.
12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the father of genetics, and developed the Laws of Heredity.
13. DNA was discovered by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on the studies (pics) of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ produces identical cells, while \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ produces unique cells.
15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_during the prophase I stage of meiosis helps to ensure diversity of organisms that sexually reproduce by producing cells that vary; in addition, this produces haploid cells.
16. Genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_ occur when DNA is altered during replication.
17. DNA sequences may be inserted into an existing DNA strand, which is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mutation.
18. DNA sequences may be deleted from an existing DNA strand, which is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mutation.
19. DNA sequences may be substituted, which is known as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mutation.
20. What are the similarities and differences between prokaryotes and eukaryotes?
21. What are the similarities and differences between sexual and asexual reproduction?
22. How are traits passed on from parent to offspring?
23. Why do some traits show up more often than others?
24. How are some traits combined to produce new traits?
25. How does the process of meiosis help ensure genetic diversity?
26. What constitutes genetic material and how is it formed?
27. What is a genetic mutation and how does it contribute to diversity?
28. Who are the major contributors to the discovery of concepts related to genetics?
29. Daughters inherit most characteristics from their mothers, and boys inherit most from their fathers. (True or False)
30. Alleles and genes are the same thing. (True or False)
31. Each box in a Punnett square represents a trait of one offspring, rather than a

probability that the trait will show up. (True or False)

1. DNA, genes, and chromosomes are separate structures inside the cell. (True or False)
2. Why do children look like their parents?
3. How can a child have red hair, when neither parent has red hair?
4. What is DNA and where is it found?
5. AA=
6. Aa=
7. aa=
8. Perform a Punnett square cross using the alleles (Aa) for Dad and (aa) for Mom. (aa) represents a deadly genetic disease. What is the probability that their offspring will be effected by this disease? What % will be carriers for the disease? And what % will be fre from the disease?
9. Draw, or give an example of a substitution, deletion, and insertion mutation.

A)

B)

C)

1. Give 2 examples of asexual reproduction, and draw a picture of your 2 answers.

A)

B)

1. Humans have \_\_\_\_\_\_\_\_ chromosomes. Meiosis produces a Haploid cell with \_\_\_\_\_\_\_ chromosomes. The 2 Haploids come together through sexual reproduction to form the zygote.
2. Produces identical offspring = ( Mitoses, Meiosis)